Road M1-5.63, High Priority Culvert Removal

EXISTING CONDITIONS AND PROJECT GOALS:
At milepost 5.63 along the main access road M1.0 (see Location Map, Plan Sheet 2) a culvert is concentrating runoff that is accelerating erosion of the streambank causing direct sediment delivery to Big River. This section of road is lies within 40 feet of Big River and is perched above an outside meander bend. The culvert drains water from a dormant deep-seated landslide and the outlet is approximately 12 feet from the low water line of Big River. The California Department of Parks and Recreation (DPR) is removing this culvert and constructing a rocked rolling-dip to reduce the erosion rate and to partially reconstruct the stream channel. Specific tasks include:

- remove oversteepened fill along a segment of the road;
- reduce the roadway width;
- remove the existing culvert; and
- construct a rocked-rolling dip in the road as a partial stream restoration.

TASK DESCRIPTIONS FOR WORK ALONG ROAD M1.0
The full set of plans for the proposed work includes the following plan sheets and a booklet titled: *Standard Specifications & Best Management Practices for Disturbed Lands Remediation*. These plan sheets alone are insufficient to guide the proposed work.

0+00 to 3+50 Scrape and stockpile existing gravel road base (approximately 60 cy). This rock is to be reused to surface the road following construction of the rolling dip.

0+60 to 3+00 Obliterate inside ditch

0+60 to 3+30 After brushing the roadway and fillslope (Specifications Item 5.01) reduce the roadway bench width to 20 feet by removing outboard edge and existing fillslope (approximately 200 cy); grade excavated slope to 2.5:1 (horizontal:vertical), and transition (blend) excavated slopes to match graded slopes to the north and south; transition road width appropriately to match road width to the north and south; all excavation activities are to be conducted from the existing roadway; haul all excavated material offsite to appropriate disposal site.

0+20 to 0+92 Excavate ramp down at 7.3 percent grade from **0+20** to **0+92** (approximately 100 cy to be removed) from existing elevation 23.5 feet at Station **0+20** to proposed elevation 18.5 feet at Station **0+92** (see Figure 1 below); haul all excavated material offsite to appropriate disposal site.

2+90 to 1+42 Excavate ramp down at 1.4 percent grade from **2+90** to **1+42** (approximately 125 cy to be removed) from existing elevation 20.5 feet at Station **2+90** to proposed elevation 18.5 feet at Station **1+42**; haul all excavated material offsite to appropriate disposal site.

0+92 to 1+42 Excavate flat bottom of dip down to 17.0 feet in elevation (approximately 120 cy to be removed) at centerline of M1.0 (Station **1+16**) and remove existing culvert; grade dip to drain at approximately 10 percent to the southwest toward Big River; dispose of old culvert and haul all excavated material offsite to appropriate disposal site.

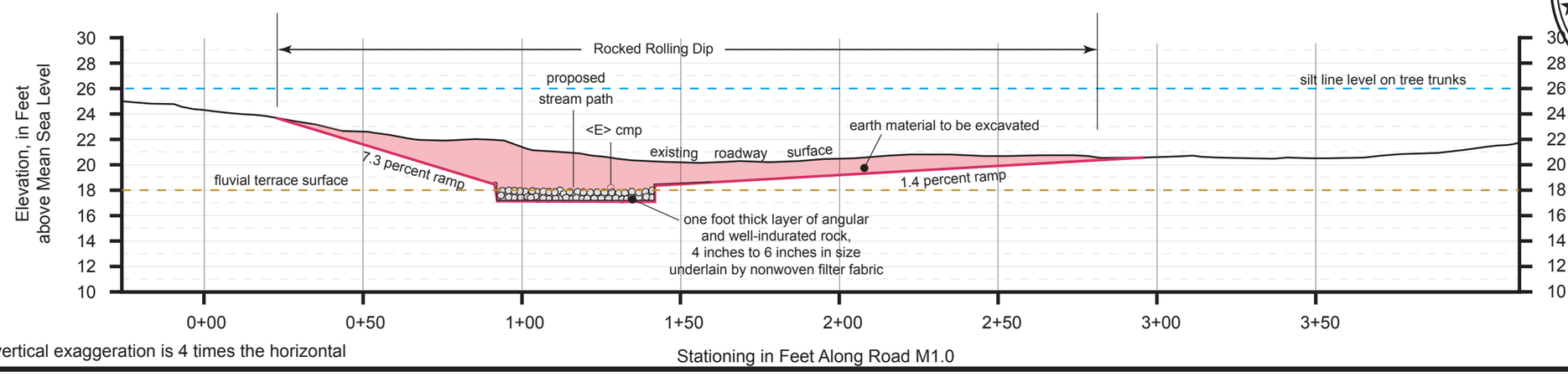
0+92 to 1+42 Line the bottom of the dip with a nonwoven filter fabric (Mirafi 140N or equivalent); also place the same type of fabric on the adjacent roadway ramps extending up the ramps from the bottom for a distance of 10 feet. Following installation of the fabric, place a one foot thick layer of angular (no "river-run"), rock, 4 inches to 6 inches in size, along the entire length (80 feet) of the the dip (approximately 20 cy). Rock is to be approved by the PI prior to installation.

0+00 to 3+50 Outslope roadway sections (**0+00** to **0+92** and **1+42** to **3+50**) 3 percent; finish grade all disturbed slopes (Specifications Item 5.07) and prepare for seeding and installation of erosion control blanket.

1+00 to 1+30 Place approximately 300 cy large angular rip-rap (min. 3 feet diameter) as an energy dissipater and slope protection between the outlet of the rolling dip down and the base of the Big River streambank. Rock is to be well-indurated and hard (rings when hit with hammer) and approved by the PI prior to installation.

POST-CONSTRUCTION EROSION CONTROL
0+00 to 3+50 Following the finish grading, all disturbed slope areas will be seeded under the direction of DPR and then erosion control blankets (ECB) shall be anchored on all disturbed slope areas (Specifications Item 4.06). Following installation of the ECBs, finish grade M1.0 and then surface the road with angular gravel (3/4" minus) to a minimum thickness of 4 inches.

Figure 1. Longitudinal Profile Along Road Center Line of M1.0 Through Crossing M1-5.63



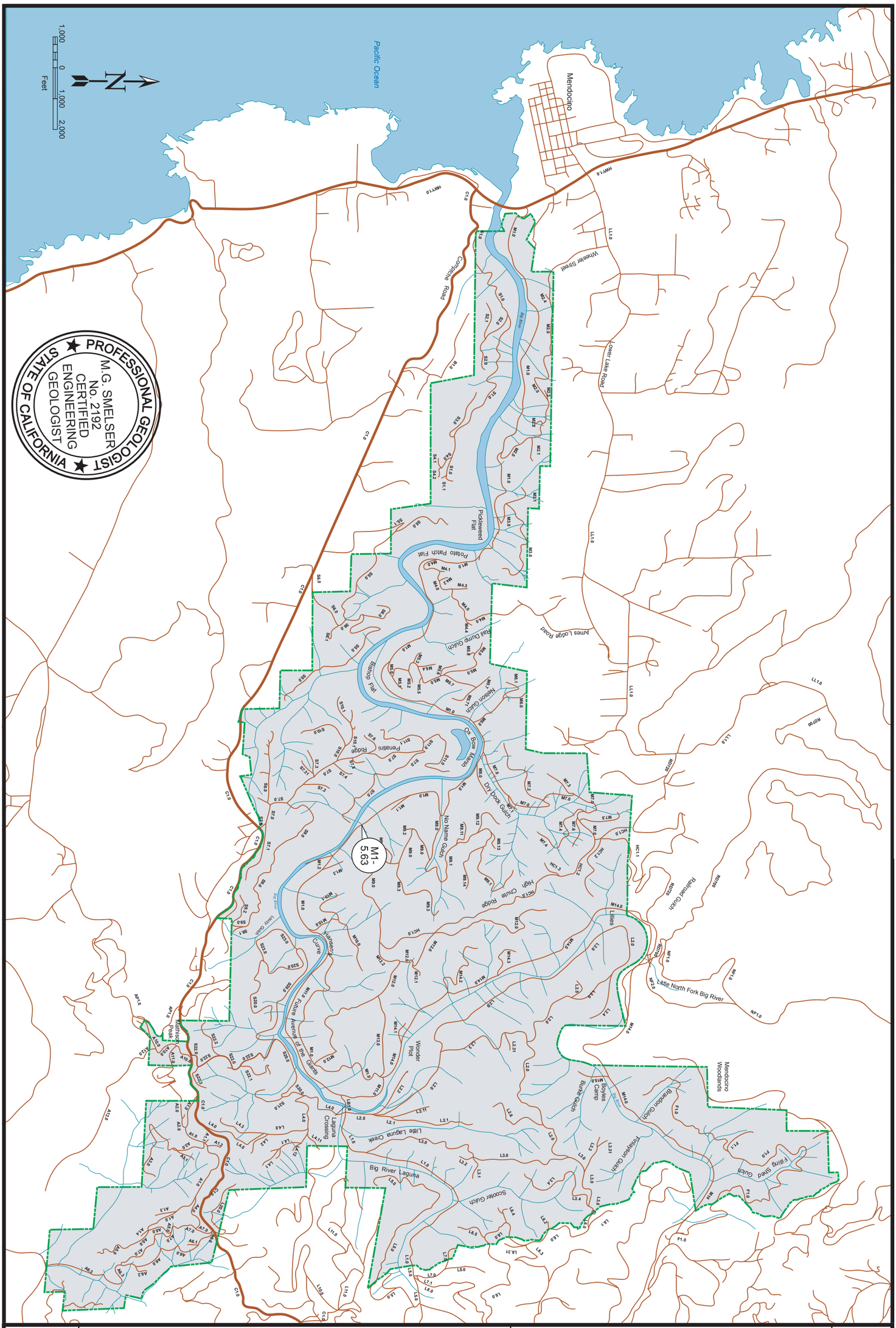
SHEET: 1 of 3

TITLE: Plan Sheet 1, Project Description and Figure 1. Longitudinal Profile of Road M1-5.63

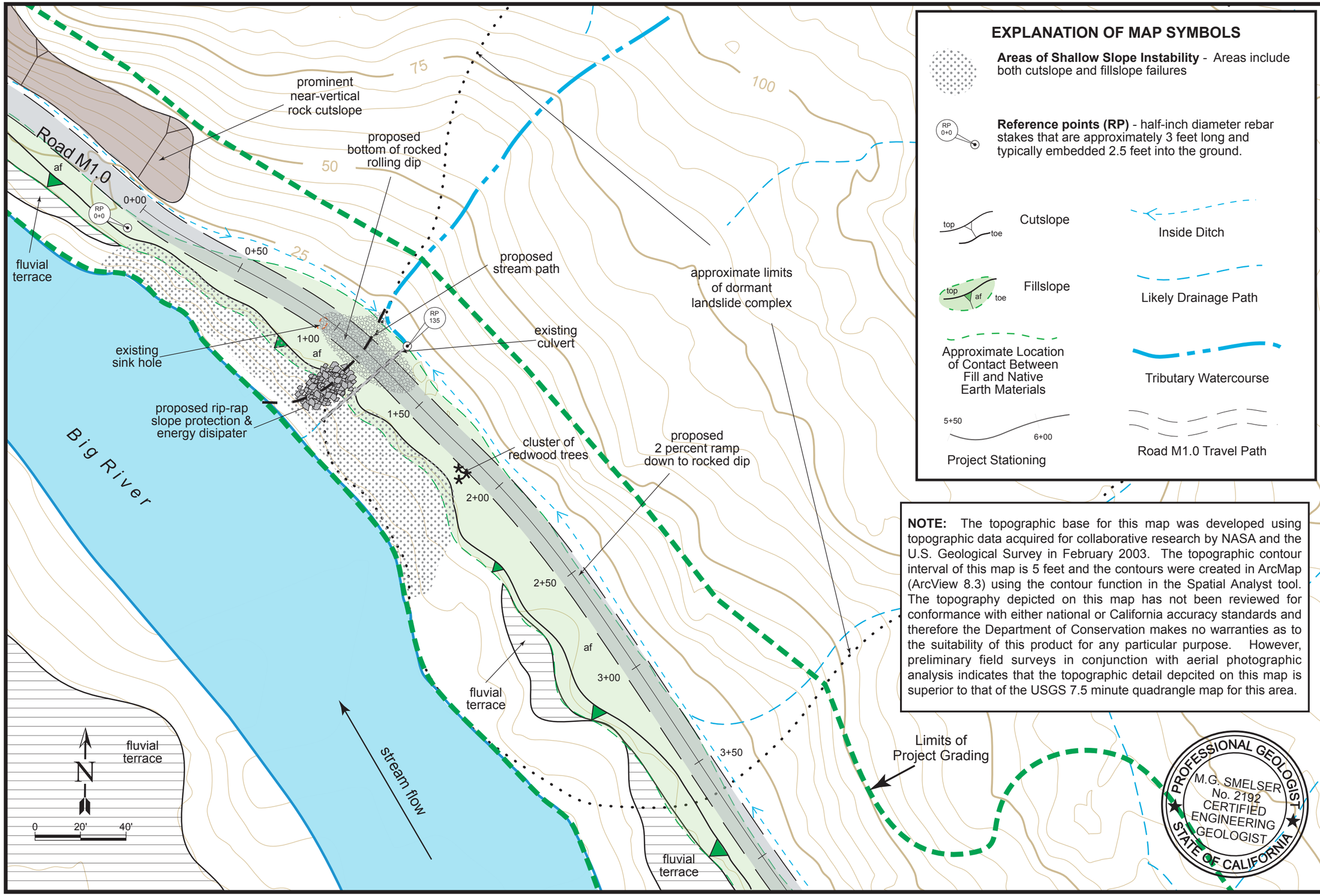
SCALE: as shown

DATE: February 27, 2006

PROJECT:
Road M1-5.63, High Priority Culvert Removal Big River Unit
Mendocino Headlands State Park, Mendocino, CA



CALIFORNIA GEOLOGICAL SURVEY / CALIFORNIA CONSERVATION	PROJECT: Road M1-5.63 High Priority Culvert Removal Big River Unit Mendocino Headlands State Park, Mendocino, CA	TITLE: Plan Sheet 2, Location Map of Road M1.0 Watercourse Crossing M1-5.63 SCALE: 1 inch = 3,000 feet DATE: February 27, 2006	SHEET: 2 of 3



EXPLANATION OF MAP SYMBOLS

Areas of Shallow Slope Instability - Areas include both cutslope and fillslope failures

Reference points (RP) - half-inch diameter rebar stakes that are approximately 3 feet long and typically embedded 2.5 feet into the ground.

top / toe — Cutslope

top / af / toe — Fillslope

Approximate Location of Contact Between Fill and Native Earth Materials

5+50 — 6+00 — Project Stationing

Inside Ditch

Likely Drainage Path

Tributary Watercourse

Road M1.0 Travel Path

NOTE: The topographic base for this map was developed using topographic data acquired for collaborative research by NASA and the U.S. Geological Survey in February 2003. The topographic contour interval of this map is 5 feet and the contours were created in ArcMap (ArcView 8.3) using the contour function in the Spatial Analyst tool. The topography depicted on this map has not been reviewed for conformance with either national or California accuracy standards and therefore the Department of Conservation makes no warranties as to the suitability of this product for any particular purpose. However, preliminary field surveys in conjunction with aerial photographic analysis indicates that the topographic detail depcited on this map is superior to that of the USGS 7.5 minute quadrangle map for this area.

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SHEET: 3 of 3

TITLE: Plan Sheet 3, Stations 0+00 to 3+50

SCALE: 1 inch = 40 feet

DATE: February 27, 2006

PROJECT:
High Priority Culvert Removal at Milepost 5.63
Big River Unit
Mendocino Headlands State Park, Mendocino, CA